Billing (A.)

ON

THE NATURE AND TREATMENT

OF

ASIATIC CHOLERA.

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TO

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CAUSES, SYMPTOMS, AND TREATMENT OF BURDWAN FEVER,

OR THE EPIDEMIC FEVER OF LOWER BENGAL;

A WORK EVINCING GREAT TALENTS AND PROFOUND KNOWLEDGE OF PHYSIOLOGY, PATHOLOGY, THERAPEUTICS, AND SANITARY REQUISITES.

ALSO OF A VALUABLE PUBLICATION ON PAPAYA.*

* The plant PAPAYA CARICA, which grows all over India, abounds with a milky juice which is a powerful solvent or digester of nitrogenous food, and may be denominated *vegetable pepsine*, as proved by experiments carried out with the kind aid of Professor Parkes, at Netley. See *Glasgow Medical Journal*, January, 1874; and the *Retrospect of Medicine*, vol. lxix., 1874.

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OF

ASIATIC CHOLERA.

"Invaded, as we are now (1866), by another visitation of Asiatic Cholera, it is incumbent on all those who have had experience in the treatment of it to communicate the result to mankind. More especially is this due to the members of the medical profession, many of whom, though now highly qualified, were not of an age, or in a position, on the former occasion of its ravages, to have witnessed them, or to have profited by what they saw. There are, besides, a number of the more experienced who can scarcely feel satisfied as to the proper mode of treatment; for, from the capricious manner in which it attacked some places, while portions of other districts entirely escaped, it was almost unseen by numerous persons of extensive practice."

It was thus that I commenced the edition of 1866, and when we have another invasion of cholera—for sooner or later it will come, and there are already rumours of its approach from the East—the majority of the profession will be taken by surprise, and uncertain how to act. I feel it, therefore, an imperative duty to offer them the result of my experience of forty years in the successive visitations of the epidemic.

A propos, let us refer to the report published in one of our medical journals in 1866, which confirms the probability that the medical world will again be taken by surprise whenever the Cholera returns. "In the direction of pre-
"ventive measures only has a single step in advance been
"taken by the combined efforts of the Medical Department
"of the Privy Council and the great body of the London

"Physicians. . . . . Medicine has not yet discovered the means "of rescuing an individual from the advanced stages of "Cholera. (See Eighth Report of the Medical Officer of the "Privy Council, 1866, Blue Book, page 367. The Sanitary "Report of the Army Medical Department, page 344, is the "same.) These conclusions have obtained practical expres- "sion at University College (Hospital), London, during the "recent epidemic; where, after various plans had been tried, "the non-drug treatment was the one most in favour.* "Thus it appears, according to the confessions of both the "civil and military medical authorities, the declarations of "the most authoritative writers, and the most recent practice "in London, that no further approach to a discovery for a "cure of Cholera has been made in 1866 than was made "when England was surprised by the great epidemic of "1832."—*Medical Press and Circular.*

This is a very forcible statement; but there is one item to which I demur. There is one writer well known who, whether "authoritative" or not, has circulated extensively a most simple, certain cure for a large per-centage of malignant Cholera cases, as may be seen by whoever takes the trouble to peruse the following pages.

There exists a source of danger from erroneous directions put forth with the weight of imposing authority; as, for instance, from the Board of Health, in the *London Gazette* of the 6th October, 1848, in which the instructions given are inefficient, and partly erroneous. In pointing out what I know to be useful in the way of remedies, these errors will be made sufficiently evident.

But, as it may be asked upon what authority I come forward so confidently, I may be excused for stating, that I have grown grey in the service. It is many years since my duties in the University of London compelled me to retire from the London Hospital—one of the best medical schools in Europe—where I had taught for twenty-five years. Hundreds of medical men who were my pupils during that period

* What a frightful statement! but, of course, if a man does not know what to do, he is wise not to do anything, lest he should do harm.

are now practising in London and various parts of the world. The fourth edition of my "First Principles of Medicine" was translated in France and Germany, and reprinted and published in the United States of America; so that, including the fifth and sixth editions, there are several thousand copies in the hands of the profession, containing the views upon Cholera which are here again advocated; and I have not yet met, either in conversation or in print, with any attempt to controvert them. In a matter of this nature, upon which such conflicting opinions are advanced, it seems necessary to offer some kind of credentials, which must be my apology for so much otherwise apparent egotism.

In the work just mentioned, my views are entered into at some length; here, for the present, I may simply state that *Cholera is a species of fever*. This is granted by some; to others, who hear it for the first time, it may seem a startling assertion, and, until they are convinced, it will of course be difficult to induce them to use the proper remedies, namely, fever-medicines, and to avoid what is hurtful, *i.e.*, stimulants.

Ague is a kind of fever, so is small-pox; the first *cold* shivering is a febrile state. How different is the first accession of these diseases to what occurs afterwards! yet not more unlike than the first *cold* stage of Cholera to the second *febrile* state, which at first was not recognised, because so many died in the preliminary cold stage; and even in those cases where death did not occur until the febrile heat had commenced, the medical attendant, being generally a novice in this disease, supposed that this (in reality febrile) heat was a beneficial result of the stimulants he had been administering, and was surprised when the patient died within a few hours.

The cold stage of what is called "Fever and Ague" is as like Cholera as may be,—cold surface, shrivelled skin of hands, livid face, crampy pains in the limbs, pain in the stomach, headache, faintness, nausea or vomiting, and sometimes diarrhœa, and, of course, little or no urine is passed.

In the cold stage of ague it is well ascertained that nothing cuts short the cold shivering and other miserable

sensations so effectually as an emetic, and that it does so without the aid of any artificial external heat or internal stimulant.*

Thus we see, that when medical men are thoroughly acquainted with a disease, they follow in many instances that practice which is called indirect and is the most efficacious. Such indirect treatment I know to be the most successful in Cholera, the remedy for this disease being:

Water, half a pint.

Tartar emetic, two grains.

Sulphate of magnesia, half an ounce. Mixed.

The dose is, for an adult (from fifteen years upwards), a table-spoonful every half-hour; for a child of a year and a half or two years, a tea-spoonful; and for the intermediate years a proportionate dose.†

External heat is useless. I have found the attendants scalding their hands in applying flannel wrung out of hot water, bags of hot bran, and other fomentations, without effect; these I have always put aside, and, generally, by the time the patients had taken the third dose (if not before) they have described a sensation of warmth creeping over

* *E.g.*, a case from our clinical journal, 1823.—A man presented himself as an out-patient, looking blue and green and miserable, shivering in the cold fit of tertian ague, pulse rapid and feeble. Directed to have an emetic immediately (one grain of tartar emetic with a scruple of ipecacuanha), and to be sent to bed. The assistant administered the emetic within a few minutes, and the man crawled up to the second floor, but was profusely sick before he reached George's ward. He soon got warm and comfortable in bed, without extra heat, and did not sweat, and had no return of the ague; took quinine, three grains three times a day for a week, and walked home well.

† It seems almost superfluous to remark, that these minute doses of neutral salt act, not as a laxative on the bowels, but as a diuretic on the kidneys, the secretion of which is uniformly suspended in true Cholera. This, however, is not all; the saline coincides with the antimony (tartar emetic)—the best established of febrifuge medicines—in counteracting the disease. And the above prescription is also the most simple and efficacious remedy, taken every fourth, sixth, or eighth hour, in *every kind of fever*. If antimony were not the most efficient of febrifuge medicines, Dr. James's fever powders would not have retained their reputation, as they have done, up to the present day.

During an epidemic of cholera or any kind of fever (in any house remote from a pharmacy), a bottle of this medicine, which will keep good for years, ought to be kept in readiness to be used at the discretion of the medical adviser.

them. The first or second dose usually begins to allay the nausea and diarrhœa.

I am not so absurd as to assert that this treatment is infallible, there being of all diseases, as scarlatina, small-pox, jungle-fever, cholera, &c., different degrees; from that which kills in three or four hours, to that which never confines the patient to bed: one individual will be so slightly attacked as to be able to walk about during the whole course; another dangerously, but still within the reach of medical skill; a third mortally—the dose of the morbid poison of the epidemic inflicted on the patient being so deleterious that no human aid can avail, any more than if a cannon-shot had passed through his body; the violence of the attack equalling the severe epidemic fevers and "sun-stroke" of hot climates, where soldiers have been known to drop down on parade, and die in a few hours.

Cholera patients should be allowed to drink freely of quite cold water; it is the only beverage agreeable to them, and it relieves the sickness and other symptoms. It is useful to give five grains of calomel, because the liver suffers as in ague. Disulphate of quinine, also, should be administered from the first day, analogously with ague or remittent, two grains or more every fourth hour; and as long as the skin continues dry, and warmer than natural, as alluded to above, half a dose of the fever-mixture should also be given each time with the quinine.

The diet should be nutritious, but light, as the tone of the stomach is greatly diminished; at first nothing is better than milk mixed with water, arrowroot, gruel, &c., given cold, until the patient's own sensations make him prefer them warm, which is evidence of a return to a more healthy state; in this respect the patient's own wishes must be attended to.

Dry friction seems to be the only useful external application to promote circulation.

When the fever-medicine cannot be quickly obtained, it is well to be acquainted with a ready substitute. The following will be found to have much influence, though it certainly is not so efficacious as to allow us to dispense with the mixture if it can possibly be procured:

Half a pint of water.

A large table-spoonful of common table-salt.

A large table-spoonful of flour of mustard. Mixed.

The doses the same as of the former.

Mustard is a well-known emetic;—but it is not because mustard, or tartar emetic, or ipecacuanha, or sulphate of zinc, or castor oil, or podophyllon, &c., produce vomiting or nausea that they give relief, but because the emetic substances and salines, including acids and alkalies, have that tonic constringent effect on the capillaries of the primæ viæ, through their vaso-motor nerves, which counteracts the effects of the epidemic poison and the phenomena of cholera, ague, and other febrile states.

Several other prescriptions might be given, containing metallic and other salts and emetic substances, but it is unnecessary to enumerate them, as they act on the same principle.

The "sal volatile" recommended in the manifesto of the Board of Health is not hurtful, as to the medicine itself, but inefficient; and the "hot water" ordered to be given with it is positively injurious. The next thing there recommended is "hot brandy-and-water," which is also injurious: as it must be known by every person, medical or not, that hot brandy-and-water is inconsistent with fever-medicines in feverish disease. But, as that wicked wag, Molière, says, "Nous avons changé tout cela;" and, for the present, the revival of Brunonianism is very rife.

It would be difficult for any person unacquainted with the phenomena of "fever and ague" properly to understand this subject.

One of the instructions of the Board is, "*in a word, to do everything practicable to procure a warm general perspiration until the arrival of the medical attendant.*" Did the writer of this ever see Cholera? In it no human means *can* procure a warm general "perspiration." The first change, whether beneficial or otherwise, must be into a gradual restoration of *dry* warmth—not *perspiration*, which, as shown above, caused many to be deceived as to the operation of stimulants. The preventive directions of the Board, which are not incorrect, are hackneyed truisms: "to keep the feet dry, the chambers

ventilated; not to drink to intoxication; to wear flannel next the skin in damp, cold weather." There is also a caution against "the use of cold purgative medicines, except under medical direction,"—as if the English were in the habit of using "drastic purgatives of all kinds, senna, colocynth, salts, &c.," as part of their diet. Then there is the common fallacy of confounding *post hoc* with *propter hoc* when one event follows another, assuming the former to be the cause of the latter where there was merely precedence of time. For instance, Cholera has occurred after a hearty meal; wherefore, strong men, sailors and others, with good appetites, after working hard must go to bed supperless, for fear of the Cholera!

But, worse still, war is declared against "*vegetables* and *fruit*"—a most useful and healthful part of our diet, which physiologists show, from the formation of our teeth, we were intended to consume, if it were not enough for our guidance that a bounteous Providence has given them to us as a useful admixture with animal food for the preservation of our health. But because some poor creatures, who could not afford better diet, had fed upon bread, "plums, and sour beer" previously to being attacked with Cholera, "*fruits of all kinds, though ripe and even cooked, and whether dried or preserved,*" are interdicted, as well as "*green vegetables, whether cooked or not.*" Whereas, on the contrary, good vegetables and ripe fruit, by preserving a healthy state of the secretions and excretions, are calculated to give strength to resist an epidemic influence.

For the purpose of demonstrating the mode of treatment recommended, I may add a couple of cases taken from my note-book—the first having all the marked symptoms of the worst form of Cholera from which patients can recover.

March 14th, half-past ten p.m.—W. H. M., aged 40, had been out attending to business, and rode in an open carriage from about 3 till 5 p.m., in good health and spirits, as remarked by his wife. About 6 p.m. attacked with pains in limbs, back, and abdomen, chilliness and coldness of the skin, with frequent vomiting and purging; supposed to have had thirty watery motions up to the present time; the matter

passed like rice-water, with white farinaceous-looking sediment; no urine; thirst, but tongue clean, moist, and cool; voice weak; pulse 110, very feeble; countenance cadaverous; skin livid (blue-black); hands cold, and the skin shrivelled; fingers crooked like a bird's claws; and in pain from cramps in hands, arms, feet, legs, neck, and trunk, both back and abdomen; voice shrill; complains chiefly of the cramps, cold, and nausea. Ordered antim. tartariz. two grains, magnesia sulph. half an ounce, in half a pint of water, a table-spoonful to be taken every half-hour.

Two a.m. (three hours from last visit).—All the symptoms relieved: no sickness; only two more motions of the same appearance; cramps gone from hands and arms, and less in the trunk—still in the legs; hands less cold; does not now feel chilly; began to feel warmer along the back after the second dose, *i.e.* little more than half an hour after commencing the medicine, though the previous efforts of his attendants with hot flannels, bags of hot bran, &c., had not produced the slightest effect, and were laid aside by me on my first arrival.

15th, eleven a.m.—All the symptoms relieved: pulse full, soft, 76; still rather thirsty, and skin warmer than natural, and dry; tongue clean, rather whitish; has had refreshing sleep within the last hour—none before; feels only weak, no cramps, but pain in muscles on motion; only three motions like the former during the last nine hours, amounting to about two pints; none for the last three or four hours; no urine; slight nausea after the last dose of the medicine—let him take only half a table-spoonful every two hours, and five grains of calomel immediately.

Six p.m.—One yellow, fœtid, feculent motion, and nearly a quarter of a pint of natural urine.

Eleven p.m.—Has had some sound sleep; feels comfortable, but weak, and muscles feel tired, and rather painful after the cramps.

16th, mid-day.—Feels well, but weak; pulse 84, full and soft; skin still warmer than natural. Ordered to continue the mixture every four hours, with half a grain of sulphate of quinine each time. The recovery progressed rapidly.

Having alluded to the very slight cases, I may subjoin one of them. Called at 10 p.m. to a lady. She had been attacked in the morning with a shivering, slight nausea, and diarrhœa; about six watery motions (rice-water and white sediment), unaccompanied by griping; no cramps, but some pain in calves of legs; the shivering continued, and she took a hot bath without any relief; she then went to bed, and could not get warm, *until* after drinking a great many cups of mixed tea (a sedative); and afterwards profuse perspiration came on, with relief, in which state she was at my visit. There had been a dry heat before the perspiration, but even then a tendency to shivering; and she remarked, that upon stretching out the hand, or even turning the head round, there was a sense of shivering produced (morbid sensibility, independent of temperature). I recommended her merely to drink some more cool tea, if thirsty; and, in case of any return of the diarrhœa the following morning, to take a dessert-spoonful of the saline antimonial every half-hour. It did return, with *nausea;* but the second dose of the medicine removed it entirely. This was during the Cholera epidemic, and how like ague!

Having now stated what is essential as to the practical treatment of the disease, I may add a few observations on the theory, which will, I trust, prove interesting to the profession; premising, for the information of those who have not read the "First Principles of Medicine," that in the term sedative I include those remedies, not stimulant or narcotic, which have been usually denominated antiphlogistic, and which have been employed to counteract fevers and inflammations—such as saline medicines of various kinds, vinegar, preparations of antimony, zinc, lead, and mercury, vegetable emetics and astringents, acids, alkalies, neutral salts, rhubarb, castor oil, &c.

Upon the analogy between Cholera and Ague I would address a few words to men of practical experience. What is called "the fever," so well known in India, beginning with chills and shivering (rigors), &c., followed by intense heat (after which, in favourable cases, there is perspiration, with relief of symptoms), pursues occasionally a different course;

for, as we also see here in common ague, the sweat does not come on, but, on the contrary, the skin remains hot, in a state of continued or remittent fever. Who that has seen much of the Cholera does not recollect some cases with this routine? Again, "the fever" of India, when it goes through the ague stages daily, does not commonly, like our agues, continue for weeks; a second, or at most a third, paroxysm is usually fatal in the *severe* cases, which the physician cannot check. Who has not seen patients die in Cholera after they had become quite hot, that fever-heat exciting fallacious hopes? There was an Indian epidemic, the "Bombay fever," recorded nearly a century ago, which is said to have destroyed the patients in the cold stage; and it was inferred that, had the patient lived, the hot stage would have come on. Who will decide now whether that was cholera or remittent fever, or which is which? for, though called "fever" from analogy, the description agrees with cholera. He who has had much experience in ague has seen all the modifications of cholera: the cold stage, with convulsions (spasms)=spasmodic cholera; ague, with nausea and diarrhœa, and of course little or no urine=the purging cholera; ague, with livid blueness of the skin (see *note*, page 5) and shrivelled fingers, like a drowned person=blue cholera; ague, passing into continued fever=a common termination of cholera, &c., &c.

One of the most successful modes of treating ague is to give an emetic in the cold stage, followed up, of course, by quinine, or other tonics, with calomel, salines, &c., *pro re natâ* (see *note*, page 6).

It would be quite beyond the limits and scope of this essay to enter further into the description of Cholera; but in Dr. James Johnson's *Med. Chirur. Review*, April, 1832, will be found ample valuable information on the subject. At p. 627 there is a note by the editor especially worthy of notice, showing that the gruel or rice-water evacuations which constantly occur are not specific, but merely the result of all the bile and fæces which had been in the intestines being carried away; or, as he says, "ex nihilo nihil fit:" and I may add that, so far from a "discharge of bile

completing cure," the discharge of bile is merely the ordinary event, evincing remission of the disease, or convalescence; and a renewed diarrhœal paroxysm of Cholera would soon wash that away too. This clear-sighted and experienced physician also inculcates the use of sulphate of quinine.

In fine, Cholera is an essentially febrile disease, whether it assume the continued, intermittent, or remittent form; it is not a new disease, but the same described by Sydenham in 1669, and subsequently by Frank;—the same which occurs in Madras, Bengal, Italy, Russia, England, and elsewhere. Sydenham's terms, "fresh type" and "new epidemic," do not imply a new disease, but a modified form of a known disease according to the "constitution of the epidemic in the year in which it occurs;" just as he speaks of the great peculiarities assumed by the identical disease small-pox at different periods.*

* The disease is one of functions, not of anatomical organic lesions or changes, and the pathology is similar to that of fevers. *At first*, as during fever, there is no organic change, but an affection of the system conveyed through the *nerves*, consequent upon the operation of the cholera poison, miasma, whatever that may be, upon the nerve centres; subsequently, if fever last long, complications of the thoracic or abdominal viscera or brain arise; in these cases, of course, after death morbid hystological lesions are found. In some years, in epidemic fevers, the bronchial membrane is chiefly affected, as remarked by Sydenham during the epidemic fever of 1685, which he denominated "febris nova;" and this was also the peculiarity of the epidemic fever of the year 1831, in London. (See New Fever Clinical Lecture, *Lancet*, 1832.) In other years, generally, disease of the intestinal mucous membrane and its glands prevails, as described by Broussais, Rasori, the Dublin physicians, and Jenner; whilst in some seasons and localities disease of the liver accompanies the fever; but if a person were to die on the first day of the disease, who had been sound up to that time, no visceral morbid change would be found. Thus in Cholera also various visceral lesions have been observed and described which had existed before the attack, though in no way connected with it; but when the viscera have been previously healthy and the patient has died quickly, nothing has been found except appearances of congestion, and that fur upon the mucous membrane of the intestines resembling a very furred tongue, with more or less softening of epithelium not amounting to lesion. I repeat, the disease is one of disturbed function of the *nerves*, not of the blood, the blood acting only as the carrier of the poison. Those who have seen much of ague know that a single dose of an emetic cuts short the paroxysm of that disease without the so-called *elimination* of the humoral pathologists. I have always been addicted to neuropathology. In fevers

If severe cases of Asiatic Cholera be taken in time, they may be cured by acting upon the principle of relieving the internal congestion; unless, indeed, analogous to what takes place sometimes in continued fevers, the individual have received so powerful a dose of the epidemic poison as will certainly prove fatal, despite any mode of treatment. If the blood, however, has begun to coagulate, the patient is dead to all intents and purposes, even whilst breathing and speaking, and the heart acting; for I have heard the sounds of the valves of the heart just before death in Cholera, when I am satisfied clots were already formed in the ventricles; at this stage, of course, neither sedatives, stimulants, bleeding, nor anything else, can produce any effect. The slight or middling cases of Cholera have a tendency, like ague, to remit of themselves; hence, whatever treatment had been adopted, the practitioner used to think he had cured them: and thus I have been repeatedly told by practitioners that they had found the right thing to cure the Cholera. But the next time I met them, there was a diminution of confidence in the specific. Any person, however, who will treat the disease on principle, may defeat it by a variety of weapons—antimony, all sorts of salines, vinegar or lemonade,* acetate of

and Cholera there is evident loss of tone of the ganglionic nerves of the capillary vessels of the spine, viscera, and limbs, with or without pain; loss of tone in the intestinal exhalants, producing diarrhœa, or sometimes no evacuation from atony of the peristaltic nerves; such loss of tone in the secreting vessels of the liver or kidneys that there is a failure of bile or urine;—all these phenomena resulting from the nerves being poisoned by malaria of marsh, cesspool, or infection, or it may be due to hitherto unexplained telluric electric action, and has lately been attributed to "volcanic agency." I have never discovered evidence of change in the blood in cholera or fever, in syphilis, eczema, or scurvy, the last the favourite example of the humoral pathologist. It is true there is a change of pus-cells into cancer-cells in cancer; but that is not in the blood, for the discharge is separated and distinct from the blood. In syphilis, eczema, lepra, &c., there is a palpable distension of the capillaries, in consequence of the nerves having lost their power of keeping the membraneous substance of the capillaries in a proper state of tension. As soon as the nerves are restored to their proper tone by the use of sedative non-stimulant medicines suited to them, such as mercury, arsenic, antimony, iodine, mezereon, &c., the capillary tubes are restored to their proper size and functions. As to syphilis, it is clear enough that the blood conveys it from one individual to another without being discoverably changed itself.

* "Case by W. G. Maxwell, M.D., Calcutta:

"'Previously to the time when I was attacked by Cholera, I had

lead, sulphate of zinc, purgatives,* common salt and water, even cold water† alone, calomel; but the last, if used in the quantity necessary to be sedative, may afterwards produce havoc on the mouth. The constant desire for cold water in Cholera is an example of natural instinct, which is thwarted by man in his wisdom, while everything hot, both as to caloric and stimulants, is often poured into the patient. Considering, then, the tonic constringent effect of the various unstimulating non-narcotic sedatives—antimony, ipecacuanha, mustard, mercury, lead, neutral salts, castor oil,‡ alkalies,

for ten years and more been treating it, and trying to cure it, in others; but when my own time was come, and I lay prostrate, then did I feel how little I knew of the disease. I had lost my patients under every treatment that I tried; and I had also seen cases recover which I had given up, and placed on litters to be brought to the next halting-ground for interment. These would have no covering, but would have the *cold damp air of night* blow on them; and they recovered.

" 'It was by *chance* that I fixed on citric acid (lemonade) for myself. It was standing amongst many other bottles on my table in my room, and I fancied it as the very thing I had an *internal longing* for.

" 'I took more than two ounces [1] of the crystallized acid, in copious repeated draughts, which refreshed me, and allayed the dreadful thirst. I passed urine, and recovered.' "—*Medical Times*, Dec. 9, 1848.

This case is the *beau idéal* of empiricism, but may be turned to account as an illustration of the principle of action of a sedative constringent on congested primæ viæ; and, by the contrast of the *cold damp air of night*, the inutility of hot applications.

* Dr. Hamilton, who wrote upon purgative medicines, and used them with success at the beginning of this century, does not mention whether his theory was that they sweeten the blood or eliminate something from it. I say they acted on the splanchnic ganglionic nerves. In the year 1816 I attended Dr. Hamilton's clinique in the Royal Infirmary, Edinburgh, for a few weeks as a visitor, and witnessed his skill; and at the same period saw the apparent advantages of cold water affusion in scarlatina fever, analogous to what Dr. Maxwell says of the cold damp air of night in cholera fever, and to the recent practice of Dr. Steiger, of Lucerne, of wrapping typhoid fever patients in wet sheets.—Vide the *Times*, Dec. 2, 1874.

† Vide cases cured by cold water alone, by Dr. Shute (*Lancet*, 1832, vol. ii. p. 774); and not merely in the cases where the patient craved for cold water, but in others where from collapse the patient was insensible to thirst, and was judiciously plied with it. And I may add a single case of a poor artisan, whom I found in his own dwelling convalescent from cholera, who said, that, "finding the frequent motions very troublesome, he remained almost permanently on the commode, and, feeling excessive thirst, drank gallons of cold water, until after some hours the complaint worked off." Some would say, was "eliminated."

‡ Or, more notably, croton oil.—T. O. Ward, *Lancet*, 1832, p. 773.

[1] = above three dozen of lemons.

acids, &c., we can understand how, as they ultimately coincide in the indication of cure, they have been adopted by different persons to effect the same purpose; and each, finding some particular substance efficacious in certain cases, has subsequently used that in preference to others.

Previous to the visitation of Cholera in 1831, before I had an opportunity of personal observation, from reading letters * from India, and books referring chiefly to the affection of the stomach and bowels (old English Cholera morbus) as the cause of the collapse, I was led to make a too limited estimate of the other symptoms of Cholera. When, however, I encountered the enemy hand to hand, I saw at once that it was like ague, not merely as regards its epidemic and miasmatic origin, but almost, if not altogether, a remittent fever of a fresh type; and I often thought of what the great Sydenham candidly said of his first encounters with new epidemics. I inculcated, therefore, a treatment in Cholera similar to that successfully adopted in Fever and Ague, which has been detailed above, and which was carried out with marked success by some of my medical friends in London, Paris, and elsewhere.

I had a letter last year from Surgeon-Major James H. Thornton, M.D. Lond.,† dated Arrah-Shahabad, Bengal, 29th July, 1873, stating that he had lately adopted the practice recommended in my "First Principles of Medicine" (*vide retrò*, page 6), and that he was much pleased with the result, being a mortality of only 12½ per cent., which is much lower than he ever experienced before in Cholera, and that he had strongly recommended it in his official reports.

He also informed me that a medical officer in Bengal, Surgeon-Major Barnard, treats cholera cases with tartar emetic, in grain doses every quarter or half an hour, with marked success; and that another medical officer, Reed, who had seen eleven epidemics of cholera, had been equally successful with large doses of tartar emetic.

* From the late Dr. Tindall Thornton, staff-surgeon in the East India Company's service, Trichinopoly, who had been my clinical clerk at the London Hospital. He considered the disease "inflammation of the epithelial membrane of the intestines," and treated it with some success by "bleeding and fever medicines."

† Nephew of Dr. Tindall Thornton, and also my pupil.

Again, Dr. W. Bathurst Woodman, one of the physicians of the London Hospital, writes to a mutual friend :—

"Cholera Hospital, Wapping.
August 21, 1866.

"I may state that at present I have only treated twelve cases of Cholera (and all in the collapsed stage) by Dr. Billing's method—that is, with tartar emetic and Epsom salts. Of these, eight have recovered, or a mortality of 33·3 per cent.* In addition to these, I have treated others with quinine from the first (which is, I think, compatible with Dr. Billing's theory), with somewhat similar results; but some of these are still under treatment. In a few cases in which camphor has seemed to do good, it has acted as an emetic.† How any one can watch Cholera, and not acknowledge its similarity to fever, I cannot imagine."

During one of the incursions of Cholera (1848–9), at a consultation with a medical friend, a former pupil, upon a case of lung-disease I asked him, "Why did you let your neighbour C—— (a surgeon) die of Cholera?" "Because I could not help it. I have lost all confidence in medical treatment for it. By the way, I have just left another patient who is dying of it." I said, "You once had the charge of one of the Cholera depôts at the East End, and probably know how long he will live." "Yes; certainly not after midnight." It was then five P.M. "Then, according to what you say, nothing can make him worse than what he is. Will you try my plan?" "Yes, with pleasure. I am bound to obey my old master." I gave him the prescription at page 6. We had to meet again the following day, at the same hour. As he entered I said, "Well, ——, was your prognosis right?" He smiled and said, "I have just left the patient walking about his room; in fact, convalescent." One case, it may be said, does not prove much; but it is one out of a great many similar, such as at page 6, &c., supported by abundant evidence.

It is in vain for such talented men as Aitken, Garrod, G. Johnson, Parkes, Schmidt, &c., to search for the proximate cause of Cholera in the blood, or hystological changes, in cases where death happens in a few hours, for there is no

* It is well known that this is a small per-centage in collapsed cases.

† Confirming the efficacy of sedative treatment.

change to be found if there has been no previously existing chronic disease. When there has been time for changes to take place, they are either slight softening of the epithelial membrane, or a diminished proportion of the salts of the blood which have been washed away, but there is no explanation of the proximate cause of the disease. The *prima facie* evidence is that of neuropathology, *i.e.*, the electro-magnetic agency of the nerves (demonstrated by Matteucci, 1844, and suggested previously by myself and others) is suddenly arrested in the splanchnic ganglionic nerves (as if by prussic acid or lightning), as all the symptoms of Cholera show—the respiration, the atony of the intestinal capillaries, the failure of animal heat for want of metamorphic electric agency.

The influence of cold damp air mentioned by Maxwell is analogous to the efficacy of cold affusion along the spine and trunk in cases of poisoning by prussic acid, and to the effect of drinking cold water in Cholera, as proved by Shute and others, and inculcated so far back as by Aretæus, whether it was Asiatic or Greek Cholera.

The question is, How can the exhaustion of the splanchnic nerves be resuscitated? Remember, the great nervous centre, the brain, is usually too powerful for the poison, as we constantly see evidenced by the clearness of the intellect; in it the nervous energy is still secreted, and communicated, conveyed, by the eighth pair of nerves and the spinal cord, to the nerves of the viscera. Suitable sedative non-stimulant treatment helps them to husband their resources, and, "Non cita mors venit, ast victoria læta."

Medical men know that the metals—iron, arsenic, copper, bismuth, mercury, antimony, &c., are powerful remedial agents adapted for peculiar cases, and mostly know which is adapted to which. I have ascertained by long experience, say empirically, that antimony is the remedy, *par excellence*, for all fevers, including cholera. You may say that I have mounted the *currus triumphalis antimonii*. So be it; but ἐμπειρία has taught me how to guide it better. *Valete!*

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even the general reader. We refer particularly to the memoir of the late Benedetto Pistrucci, engraver and medallist to the Royal Mint in London, who has been compared with Benvenuto Cellini, and whose design for the great Waterloo medal (described and illustrated in this Journal so long ago as 1850) is one of the noblest examples of the art. His coronation medals of George IV. and Victoria, his St. George and Dragon sovereign, and his Wellington medal, are familiar to most persons in England above the middle age ; but not so many are acquainted with his design of purely ideal or classical subjects. Some of these, as represented by the photographs, are of surpassing loveliness. Dr. Billing devotes much space to the narrative of Pistrucci's career at Rome and in England, with some chapters of an autobiography, translated by Mrs. Billing, which is well worthy of perusal."—*Illustrated London News.*

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